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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------|------------------|
| 09/872,052 | 05/31/2001 | Robert S. Matson | 1810A-045 (81841.0192) | 8141 |
| 26021 | 7590 | 09/14/2004 | EXAMINER | |
| HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611 | | | LAM, ANN Y | |
| | | ART UNIT | PAPER NUMBER | |
| | | | 1641 | |

DATE MAILED: 09/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/872,052 | MATSON ET AL. | |
| | Examiner | Art Unit | |
| | Ann Y. Lam | 1641 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 07 May 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 55-71 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 55-71 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Objections

Claim 62 is objected to because of the following informalities: “acylic” in line 2, should be acrylic (based on Applicant’s disclosure on page 8, line 7, of the specification.) Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 55-61 and 63-71 are rejected under 35 U.S.C. 102(e) as being anticipated by Obremski et al., 6,110,749.

Obremski et al. disclose a plurality of biopolymer and a solid support (see column 2, lines 63-67), wherein the solid support has at least one surface comprising pendant acyl fluoride functionalities (see column 16, lines 64-67), and wherein an unmodified end of the biopolymer is attached to the solid support by reaction with the pendant acyl fluoride functionalities in the absence of a spacer arm (see column 16, lines 64-67.)

The end of the biopolymer that is attached to the solid support is unmodified since Obremski does not disclose that the biopolymer must be modified in order to be attached to the solid support. Likewise, the attachment is performed in the absence of a spacer arm since Obremski does not disclose that a spacer arm is required in order for the biopolymer to be attached to the solid support by reaction with the pendant acyl fluoride.

As to claim 56, the biopolymers are nucleic acids (see column 7, lines 39-47.)

As to claims 57 and 58, the biopolymers are polynucleotides (see column 7, lines 39-47.)

As to claim 59, the polynucleotide is single or double stranded DNA (see column 7, lines 39-47.)

As to claims 60 and 71, the biopolymers may be the same or different.

As to claim 61, the solid support is of polymeric materials (see column 16, line 64.)

As to claim 63, the solid support is the form of films (see column 16, line 33.)

As to claim 64, the solid support is fabricated from plastic in the form of a planar device having discrete isolated areas in the form of wells (see column 6, lines 65-66.)

As to claim 65, the solid support is considered a microplate.

As to claim 66, the plastic is a surface treated with acyl fluoride functionalities (see column 16, lines 64-67.)

As to claim 67, the plastic is polypropylene (see column 16, line 64.)

As to claims 68-70, the biopolymers are attached to different, discrete, isolated areas to form an array (see column 2, lines 63-67.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Obremski et al., 6,110,749, in view of Lindall, 5,470,307.

Obremski teaches the invention substantially as claimed (see above with respect to claim 55.)

More specifically, Obremski teaches that biopolymers, including proteins (column 16, lines 39-40) and oligonucleotides (column 16, lines 64-65), are attached to a solid support (see column 16, lines 39-40 and lines 64-67.) Furthermore, Obremski teaches that the solid support (i.e., waveguide) is generally made of a plastic material (col. 1, lines 45-46), and need not be made of optical quality material and can be made of relatively inexpensive plastic sheet (col. 6, lines 25-27.) Obremski specifically teaches in an example on column 16, line 64, that the solid support is made of polypropylene film.

However, Obremski does not teach that the polypropylene is carboxylated.

Lindall teaches a polymer support surface (14) that is made of carboxyl-modified polypropylene and has proteins (column 8, line 4 and column 17, lines 4-5) or nucleotides (column 8, line 5) coupled to it. It would have been obvious to one of ordinary skill in the art to substitute polypropylene with carboxyl-modified polypropylene as the material to form the Obremski waveguide since Lindall discloses that carboxyl-modified polypropylene is a useful plastic material to which proteins and nucleotides may be coupled.

Response to Arguments

Examiner hereby withdraws the previous rejections under Milton '669, and thus Applicant's arguments with respect to the rejections under Milton '669 are moot.

However, Applicant's arguments with respect to the rejections under Obremski filed May 7, 2004 have been fully considered but they are not persuasive.

Applicant argues on page 8 that column 16, line 65 – column 17, line 1 is both vague and nonenabling since it is not even clear from the statement whether the waveguide or the oligonucleotide has an acyl fluoride functionality.

In response, Examiner asserts that the waveguide must have an acyl fluoride functionality at least at some point in order for the oligonucleotide to be covalently coupled to the waveguide using acyl fluoride coupling (col. 16, lines 65-67.)

Applicant also argues on page 8 that Obremski is silent as to whether the oligonucleotide is modified at the end where the covalent coupling takes place, and thus a person of ordinary skill in the art would assume that a modification of the

oligonucleotide took place before the covalent attachment was performed since this is in keeping with the prior art before the present invention.

In response, Examiner reasserts that in the absence of a teaching that the biopolymer must be modified in order to be attached to the solid support, one of ordinary skill in the art would not modify the biopolymer. Obremski does not disclose that the biopolymer must be modified in order to be attached to the solid support.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Y. Lam whose telephone number is 571-272-0822. The examiner can normally be reached on M-Sat 11-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A.L.



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GROUP 1800-1641
9/11/04